




UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,918	07/24/2001	Suresh Golwalkar	35706.9100	4220
34398	7590	07/27/2004	EXAMINER	
PRIMARION 2507 WEST GENEVA DRIVE TEMPE, AZ 85282			DINH, JACK	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/911,918	Applicant(s) GOLWALKAR ET AL.	
	Examiner Jack Dinh	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,6-11,13-35,41,42,44 and 46-92 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-11,13-21,23-35,41,42 and 46-92 is/are allowed.
- 6) ☒ Claim(s) 3,6,7,22 and 44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>DETAILED ACTION</u> . |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 3, 6, 7 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henson et al. (US Patent 5,325,455).

(a) Regarding claim 3, Henson et al. (figures 1 and 3) is interpreted as disclosing an optical coupler for coupling an optoelectronic device 48 to an optical fiber 24 comprising an electrical connector 94, an optical transmission medium 38 comprising fused fibers 24 disposed proximate the electrical connector, and an encapsulant 14 surrounding at least a portion of the connector and at least a portion of the transmission medium. Henson et al is interpreted as disclosing all the claimed limitations except that each of the fused fibers has a core diameter smaller than about 50 microns. However, the Applicant has not provided any unexpected results of using fibers of this size over those of the prior art. In addition, fused fibers with core diameter smaller than 50 microns are widely available to those skilled in the art. It is considered not inventive to discover the optimum size by routine experimentations. Therefore, it would have been obvious to one having ordinary skill in the art at the time that the invention was made to select a fused fiber with

Art Unit: 2873

core diameter of this size, or perhaps any other sizes, for the purpose of providing an optical transmission medium.

(b) Regarding claim 6, Henson et al. (figure 1) is interpreted as further disclosing guide grooves **46** configured to receive guide pins **42** attached to fiber ribbon **24**.

(c) Regarding claim 7, Henson et al. (figure 1) is interpreted as further disclosing a ground plane **18** formed on a lower portion of the coupler.

(d) Regarding claim 22, the claimed optical transmission system is inherent from the optical coupler described in claim 3.

2. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. (U.S. Patent 6,476,379).

Regarding claim 44, Ando et al (figure 2) is interpreted as disclosing a method of forming an optical coupler comprising the steps of creating electrical connectors **27**, attaching a waveguide **25** to the electrical connectors, and encapsulating **23** at least a portion of the electrical connectors and at least a portion of the waveguide, and coating an end of the electrical connectors with a conductive material (col. 9, 36-38). Ando et al. is interpreted as disclosing all the claimed limitations except that the step of coating and end comprises attaching a conductive tape to an end. However, the concept of coating a conductive material to an end of an electrical connector by means of attaching a conductive tape to that end could not be any less obvious to

Art Unit: 2873

one of ordinary skill in the art. Therefore, it would have been obvious to one having ordinary skill in the art at the time that the invention was made to use this obvious technique for the purpose of coating the conductive material to the connectors.

Allowable Subject Matter

3. Claims 8-11, 13-21, 23-35, 41, 42, 46-92 are allowed. The following is a statement of reasons for the indication of allowable subject matter: The present application relates generally to optoelectronic devices. More particularly, the invention relates to apparatus for coupling optical fibers to optoelectronic devices, systems including the apparatus and optoelectronic components, and methods of forming the apparatus and system. The prior art taken either singly or in combination fails to anticipate or fairly suggest the limitations of the independent or dependent claims, in such a manner that a rejection under 35 USC 102 or 103 would be improper.

Regarding claim 8, the prior art fails to disclose the die attachment material to facilitate bonding of the connector to a substrate.

Regarding claim 9, the prior art fails to disclose that the conductive tape configured to facilitate coupling the connector to an optoelectronic device.

Regarding claim 10, the prior art fails to disclose that the electrical connector includes a conductive plug within the microelectronic device.

Regarding claim 13, the prior art fails to disclose that the electrical connector formed at least partially within the encapsulant.

Regarding claim 18, the prior art fails to disclose that at least a portion of the encapsulant comprises a transfer mold compound.

Regarding claim 20, the prior art fails to disclose a substrate comprising electrical connectors formed as electrical traces and conductive plugs.

Regarding claim 21, the prior art fails to disclose that the guide groove is formed of conductive material.

Regarding claim 23, the prior art alone or in combination fails to disclose an optical interconnect system comprising an optical couple comprising a waveguide, an encapsulant, and an electrical connector formed at least partially within the encapsulant, a fiber optic cable attached to the optical coupler, and a substrate electrically couple to the coupler.

Regarding claim 41, the prior art fails to disclose the step of polishing the end of the waveguide.

Regarding claim 42, the prior art fails to disclose the step of singulating.

Regarding claim 48-52, the prior art fails to disclose an optical transceiver wherein a photonics component flip-chip mounted to the electrical connector.

Regarding claim 53-57, the prior art alone or in combination fails to disclose an optical transceiver comprising an electrical connector, an optoelectronic component mounted to the first portion of the electrical connector, a substrate attached to a second portion of the electrical connector, an optical transmission medium disposed proximate the electrical connector, an encapsulant surrounding the connector and the transmission medium, and a guide groove formed within a portion of the encapsulant.

Regarding claim 58, the prior art fails to disclose the step of ancapsulating for maintaining the electrical connector and the waveguide in a fixed space relationship.

Regarding claim 70, the prior art fails to disclose an ancapsulant for maintaining the electrical connector and the optical transmission medium in a fixed space relationship.

Regarding claim 71, the prior art fails to disclose an optical transmission medium comprising fused optical fibers having a core diameter less than the first core diameter of the optical fiber.

Regarding claim 81, the prior art fails to disclose an optical transmission medium juxtaposed with the electrical connector, an optical path of the optical transmission medium being parallel to and coextensive with at least a portion of the electrical connector, and an optoelectronic device attached to the electrical connector transverse to the optical path and adjacent one end of the optical transmission medium.

Regarding claim 86, the prior art fails to disclose an optical transmission medium attached to the electrical connector wherein the optical transmission medium being parallel to at least a portion of the electrical connector such that a surface portion of the electrical connector and an end surface of the optical transmission medium form a substantially coplanar surface, and an optoelectronic device attached to the surface portion of the electrical connector and adjacent the optical transmission medium at the coplanar surface.

Other Information/Remarks

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Dinh whose telephone number is 571-272-2327. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jack Dinh


Georgia Epps
Supervisory Patent Examiner
Technology Center 2800